



MEADE[®]
INSTRUMENTS

TE256W

**Slim Indoor/ Outdoor Thermo-Hygrometer
with Atomic Clock**



USER MANUAL

INTRODUCTION

Thank you for selecting a Meade Instruments Weather Forecaster! This device combines precise time keeping, monitoring and displaying of current temperature/ humidity data from up to three remote locations (additional sensors are required).

Meade Instruments is the world's leading designer and manufacturer of telescopes for professional and amateur astronomers – famous for its innovative, high performance telescopes at affordable prices. Meade Instruments now brings that same passion for innovation and high performance to its own line of precision, feature rich weather stations.

Please read this instruction manual so that you can get the most enjoyment out of your Meade Instruments weather station.

In this package, you will find:

- One main unit (receiver)
- One single-channel remote sensor (transmitter)
- One user manual

Please keep this manual handy as it contains practical instructions, technical specifications and precautions.

INSTALLATION

Communications between the main unit (receiver) and the remote sensor (transmitter) is wireless. This allows you to greater flexibility in choosing the location of remote sensor. The remote transmits data up to 164 feet (50 meters) over an open, unobstructed area.

The remote sensor can be located either indoors or outdoors, allowing you chose where your data is obtained.

NOTE:

- It is critical to power the remote sensor **BEFORE** setting up the main unit.
- It is critical to power up and **test** communication between the remote sensor and the main unit **BEFORE** permanently mounting outside.

BEFORE YOU BEGIN

- We recommend using **alkaline batteries** for the remote sensor and the main unit. If outdoor temperatures regularly fall **below 32°F (0°C)**, we recommend using **lithium** batteries.
- Avoid using rechargeable batteries. (Rechargeable batteries cannot maintain correct power requirements.)
- **ALWAYS** insert batteries into the **remote** sensor *before* the main unit.
- Insert batteries before first use, matching the polarity in the battery compartment.
- During initial set up, place the remote sensor close to the main unit.
- After reception is established (remote readings will be appeared on the main unit's display), position the remote sensor and the main unit within the effective transmission range of up to 164 feet (50 meters).
- The main unit must be placed indoors.

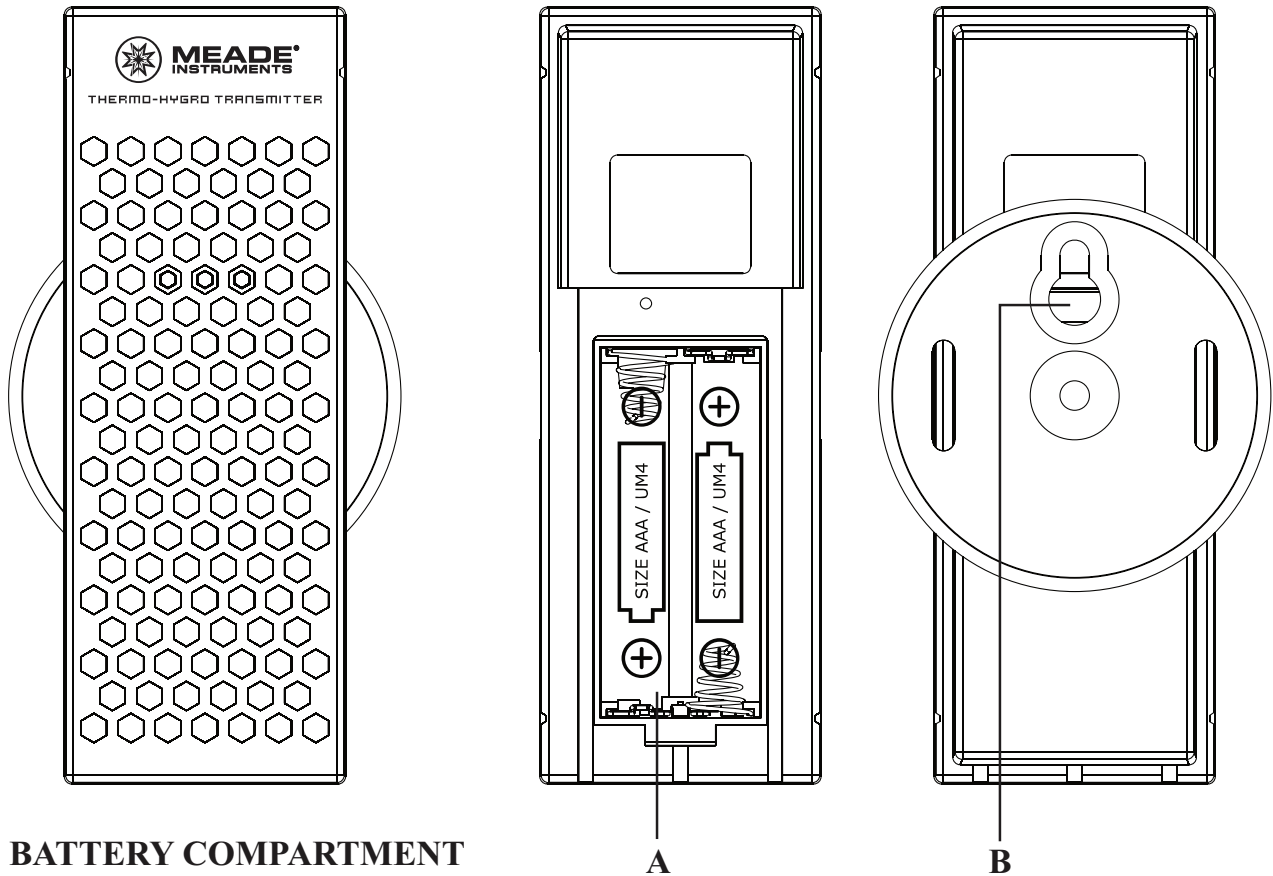
NOTE:

- Avoid pressing any buttons on the main unit before the remote readings are displayed.
- Transmission or reception range may be affected by trees, metal structures, and electronic appliances, surrounding building materials and how the main unit and transmitter are positioned.
- Place the remote sensor so that it faces the main unit (receiver), minimizing obstructions such as doors, walls and furniture.
- Though the remote sensors are weather-resistant, they should be placed away from direct sunlight, rain or snow. The optimal location for the remote sensor outdoors is under the eaves on the north side of the building.

REMOTE TEMPERATURE AND HUMIDITY SENSOR (TS21)

FEATURES

- Remote data transmission to the main unit via 433 MHz frequency
- Single transmission channel
- Case can be wall mounted using accessory hanger



A. BATTERY COMPARTMENT

- Holds two AAA-size batteries

B. WALL-MOUNT RECESSED HOLE

- Mounts the remote sensor on the wall

BATTERY INSTALLATION

NOTE: When the temperature falls below freezing point 32F° (0C°), battery voltage will drop which may result in reduced the transmission range. For optimum performance in cold weather conditions, we recommend using lithium batteries.

NOTE: Install the batteries before mounting the remote sensor.

- Remove the screws from the battery compartment with a small Phillips screwdriver (not included).
- Install 2 “AAA” size batteries (not included) matching the polarities shown in the battery compartment.
- Replace the battery compartment door and secure the screws.
- Secure the remote sensor in the desired location.

MOUNTING

- The remote sensor can be mounted either horizontally or vertically.
- Use a screw, rather than a nail, to securely mount the sensor.

PLACEMENT

- The remote sensor should be placed under eaves or a similar location with free air circulation, sheltered from direct sunlight and extreme weather.
- Ideally, place the remote sensor over soil, rather than asphalt, which would cause false readings.
- Avoid placing the remote sensor near sources of heat, such as chimneys and heating elements.
- Avoid areas that collect heat from the sun and radiate heat, such as metal, brick or concrete structures, paving, and patios.
- The international standard for the valid air temperature measurements is 4 feet (1.25meters) above the ground.

OPERATION

Immediately after batteries are installed, the remote sensor will start transmitting a temperature and humidity data to the main unit.

MAIN UNIT

FEATURES

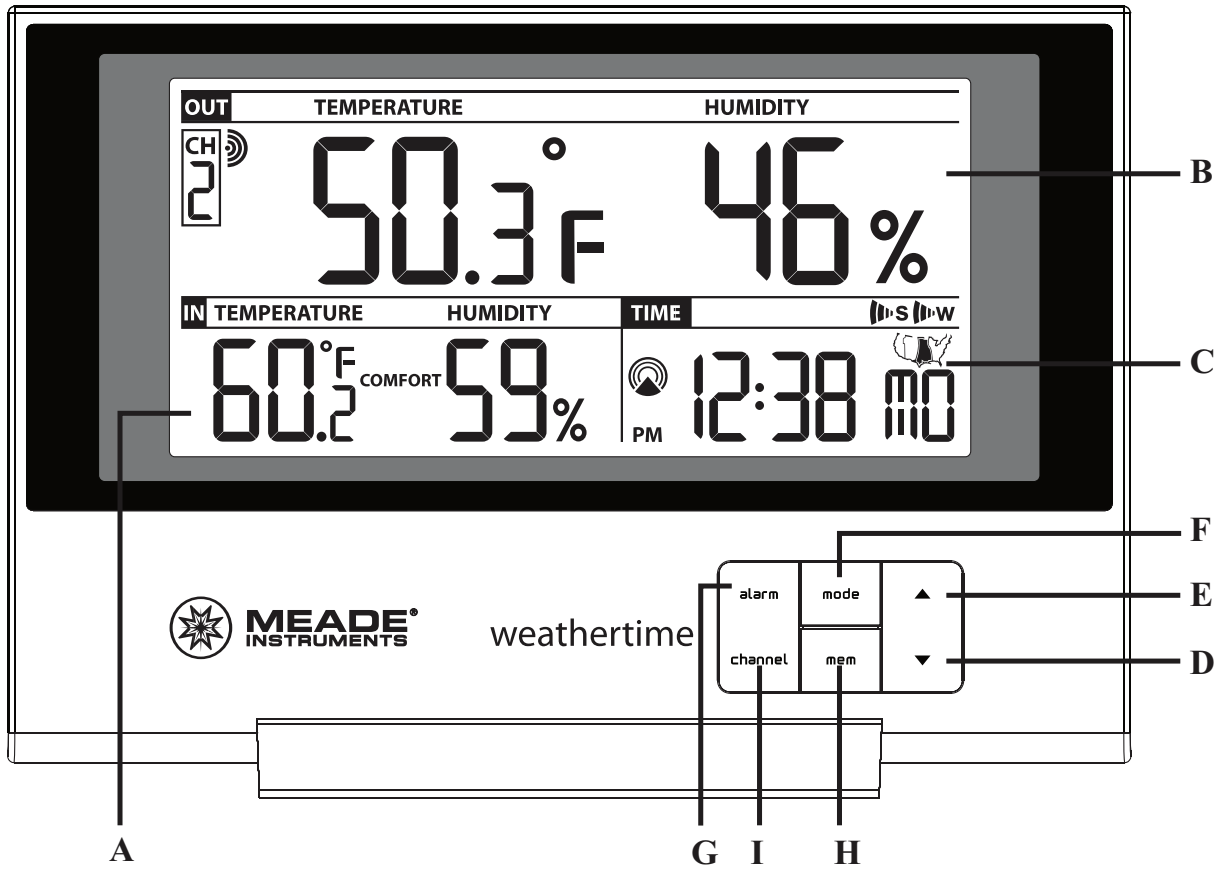
TIME

- Precise time and date set via signals from the US Atomic clock
- 12 or 24 hour time format
- Manual adjustment of time and date
- Calendar displays in date with month format
- Weekday abbreviation in 7 languages English, German, French, Italian, Spanish, Dutch and Swedish
- Dual crescendo alarms with snooze
- Programmable ice warning alarm

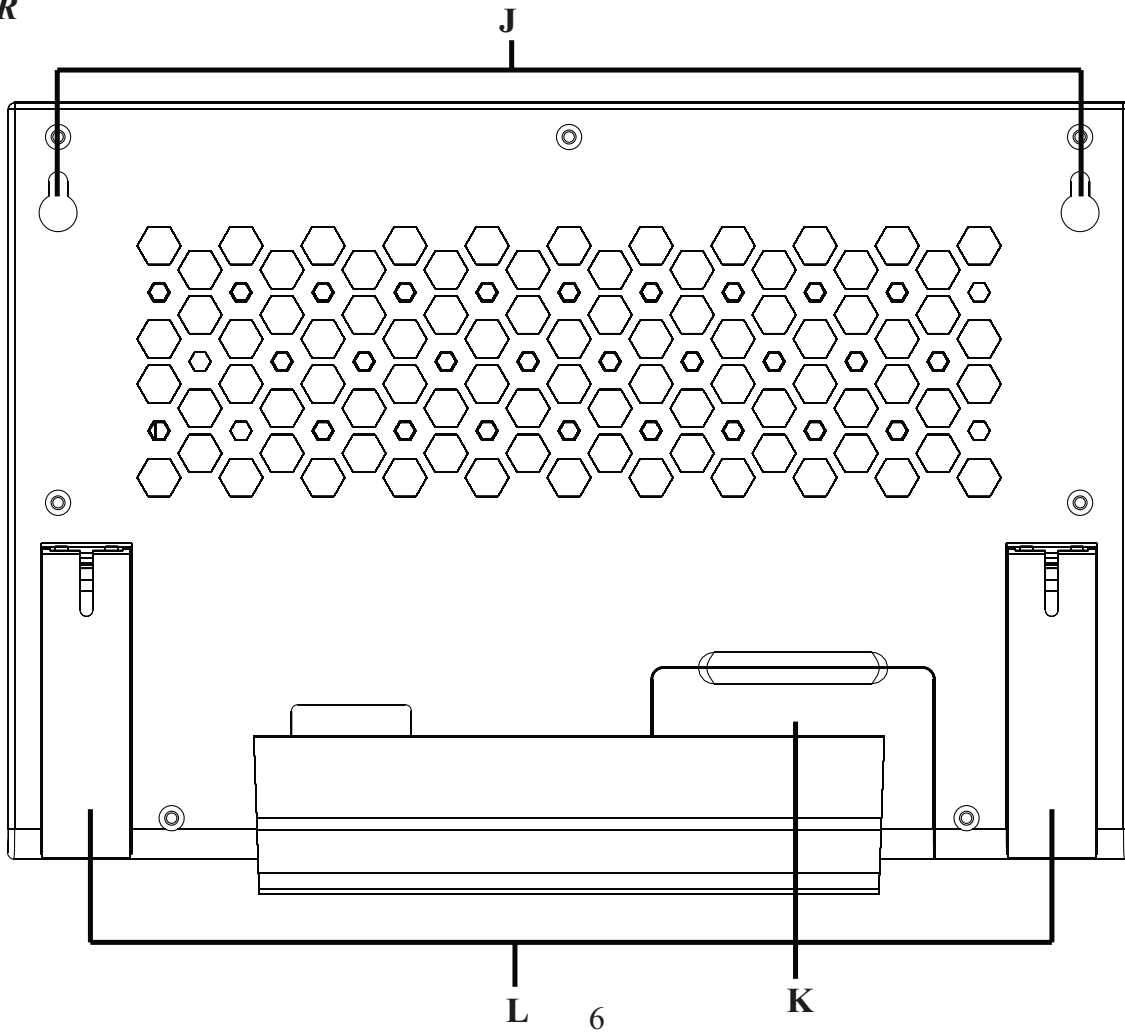
TEMPERATURE AND HUMIDITY

- User-defined high/ low temperature alarm
- Indoor/ outdoor temperature and humidity in up to 3 remote locations (additional sensors required)
- Comfort level indicators (wet, comfort, dry)
- Minimum and maximum memories of temperature and humidity
- Auto scanning mode – 3 channels of outdoor readings will be displayed one by one automatically

FRONT



REAR



A. INDOOR TEMPERATURE/ HUMIDITY window

B. OUTDOOR TEMPERATURE/ HUMIDITY window

C. CLOCK window

D. DOWN (?) button

- Select the next available mode
- Press and hold for 2 seconds to search for wireless signal from remote sensor.
- Decrease parameters.

E. UP (?) button

- Press to select the next available mode
- Increase the parameters
- In time with seconds display mode, press and hold for 2 seconds to activate/ deactivate atomic time signal search manually.
- In time with weekday display mode, press and hold for 2 seconds to switch time zone from Pacific, Mountain, Central to Eastern.

F. MODE button

- When time mode has been selected, press once to toggle between time with seconds display or time with weekday display.
- Press and hold for 2 seconds, set language of the day of the week, year digit, month digit, date digit, hour format (12/ 24 hours), hour digit and minute digit. (Note: calendar format is default in month-date display)
- When temperature and humidity mode has been selected, press and hold for 2 seconds to toggle the temperature unit between Celsius or Fahrenheit.

G. ALARM button

- When time mode has been selected, press once to display the alarm time of weekday alarm (W), single alarm (S) and pre-alarm (Pre-AL).
- Hold for 2 seconds, set weekday, single or pre-alarm's alarm time.
- When temperature and humidity mode has been selected, press once to display the highest or lowest temperature alarm's value.
- Hold for 2 seconds, set the highest or lowest temperature alarm's value.
- When alarm is on, press once to stop the alarm temporarily.

H. MEM button

- When temperature and humidity mode has been selected, press to recall the minimum or maximum temperature and humidity readings of main and remote units.
- Press and hold for 2 seconds, collected memories will be cleared.

I. CHANNEL button

- Press to display the outdoor temperature readings of Channels 1, 2 and 3. (additional remote sensors are required)
- Hold for 2 seconds, enter into the circulation mode and outdoor temperature readings of Channels 1, 2 and 3 will be displayed automatically in every 5 seconds.

J. WALL- MOUNT holes

- Use 2 provided screws to mount the unit on a wall

K. BATTERY COMPARTMENT

- Accommodate two (2) CR2032 batteries

L. TABLE STAND

BATTERY INSTALLATION

- Remove the battery door located at the back of the main unit.
- Insert two (2) CR2032 lithium cell batteries and replace the battery compartment door.

PLACEMENT

- When mounting the main unit on the wall or vertical surface, fold the table stand back into the unit.
- Make sure that the main unit is locating within the operating range of all remote sensors.
- Ideally the main unit should be placed within line of sight of remote sensors. Avoid placing the main unit where surfaces emitting and radiating heat (e.g. heating ducts or air conditioners) and areas with interference from wireless devices (e.g. cordless phones, radio headsets, baby monitoring devices and other electronics).

OPERATION

Once the main unit is powered, the display will show all available LCD segments for a moment.

GETTING STARTED

TEMPERATURE/ HUMIDITY WINDOW




The main unit supports up to 3 remote sensors, corresponding to a separate channel of the temperature and relative humidity display. The temperature can be displayed in Celsius (°C) or Fahrenheit (°F).

The main unit carries the temperature and humidity sensor and uses this data to calculate an indoors comfort level - **Wet, Comfort** or **Dry**.

A temperature alert function is available for all channels. It can be programmed to sound if the channel temperature exceeds or falls below the pre-set upper and lower limits.

REMOTE SENSORS STATUS


The wave icon next to the current channel icon shows the connection status of the corresponding remote sensor:

Icon	Status
	Searching for the signals from the remote sensor
	Corresponding remote sensor signal received successfully
	No signals received for over 1 hour

SEARCH FOR REMOTE SENSORS

- The main unit can be manually activated to search for the signals from remote sensors by pressing and holding **DOWN** (?) button.

OPERATION


- To select the temperature & humidity mode, press **UP** (?) or **DOWN** (?) until the  icon flashes with a beep sound alert.

VIEWING REMOTE (CHANNEL) TEMPERATURE AND HUMIDITY

Static Display:

- Press the **CHANNEL** button to select measurements from different remote sensors, each is MODE to a unique channel 1, 2 or 3.

Channel Auto-Scan Display:

- To enable an automatic scan of all channels, press and hold **CHANNEL**, until the  icon is displayed. The measurements from each remote channel will be alternately displayed with a 5 seconds viewing.

NOTE: the channel auto-scan feature can be activated only if there **are more than one** remote sensors operating and are set to different channels.

PROGRAMMING TEMPERATURE IN CELSIUS OR FAHRENHEIT

- Press and hold MODE button for 3 seconds to toggle the temperature unit in Celsius (°C) or Fahrenheit (°F).

SETTING TEMPERATURE ALARM

- Press **▼** down button to select temperature display.
- Press **ALARM** button selecting the desired alarm, the upper temperature alert with **▲** icon (if disabled, displays OFF), or lower temperature alert with **▼** icon (if disabled, displays OFF).
- Press and hold **ALARM** button until the temperature digits flashing.
- Adjust the temperature digits using the **UP** (?) or **DOWN** (?). Press and hold either button for fast digits advance
- Press the **ALARM** to confirm selection and return to the temperature alarm selection screen

ACTIVATING OR DEACTIVATING TEMPERATURE ALARMS

- Once the above alerts are displayed, press the **UP** (?) or **DOWN** (?) to enable or disable the corresponding alert.

VIEWING MAXIMUM AND MINIMUM READINGS

Press the **MEM** button recalling:

- Current temperature and humidity
- Minimum temperature and humidity
- Maximum temperature and humidity

RESETTING TEMPERATURE MEMORIES

Press and hold MEM button for 3 seconds to clear all channel memories.

COMFORT LEVEL INDICATION

The main unit is capable of detecting and displaying the current indoor comfort levels of surrounding environment. The comfort level based on the combination of the current indoor temperature and humidity readings. The following comfort levels may be displayed:

COMFORT (comfortable); **WET** (wet) and **DRY** (dry)

Indicator displayed	Temperature Range	Humidity Range	Shows current condition
COM	20°C to 25°C (68°F to 77°F)	40%RH- 70%RH	Ideal relative humidity and temperature
WET	-5°C to 50°C (23°F to 122°F)	OVER 70%RH	Contains excess moisture
DRY	5°C to 50°C (23°F to 122°F)	BELOW 40%RH	Contains inadequate moisture


CLOCK WINDOW





WWVB RADIO CONTROLLED TIME

The NIST (National Institute of Standards and Technology) radio station (WWVB) is located in Ft. Collins, Colorado. It transmits an exact time signal continuously throughout the most of the continental United States at 60 KHz frequency. The main unit can receive this WWVB signal through the internal antenna from up to 2,000 miles away. Due to the nature of the Earth's ionosphere, reception can be limited during the daylight hours. The radio controlled clock will search for an alternate station that receives the atomic time signal from the NIST Atomic clock in Boulder, Colorado.

The WWVB tower icon on the unit's display will flash indicating a radio signal reception from the WWVB station. If the tower icon is not fully lit, or if the time and date are not set automatically, please consider the following:

- During nighttime hours, atmospheric disturbances are typically less severe and radio signal reception may improve. A single daily reception is sufficient enough to keep the clock accuracy within 1 second.
- Make sure the unit is positioned at 8 feet (2 meters) distance from any interference source such as a TV, computer monitor, microwave, etc.
- Within concrete wall rooms such as basements or office buildings, the received signal may be weakened. Always place the main unit near the window for better reception.

Once the atomic time signal is received, the date and time will be set automatically, and the [] icon will appear.

ICON	Time Signal Reception Strength
 (Flashing)	Undefined data
	No Reception for the past 24 hours
	Weak signal, but can be decoded
	Strong signal

- The atomic clock receiver is programmed that it will search for the time signal daily at 0:00, 3:00, 6:00, and 12:00 am.
- To enable or disable the atomic time receiver, press and hold UP (?) button for 3 seconds. If time reception is activated, a tower icon will start flashing. If reception is disabled, the tower icon will disappear.
- If the time signal has not been received in 8 minutes, you may set the time manually.

MANUAL SETTINGS

To select the time mode, press **UP (?)** or **DOWN (?)** until the **TIME** icon flashes with a beep sound alert. It is necessary to set the desired **US TIME ZONE**.

TIME ZONE

- Press **MODE** button **once** to select hour and minutes with the day of the week display.
- Select the Time Zone by pressing and holding **UP (?)** button for 3 seconds
- Keep holding **UP (?)** button until the desired US Time Zone (Pacific, Mountain, Central or Eastern) is highlighted on the display's US map, located to the right of the time display and above the day of the week
- Release the **UP (?)** button. The Time Zone is set.

TIME AND CALENDER

- Press and hold **MODE** button until the day of week language abbreviation “**ENG**” will flash
- Press the **UP** (?) or **DOWN** (?) selecting the day of the week in English, German, French, Italian, Spanish, Dutch or Swedish.
- After the language of weekday is set, press **MODE** button to confirm and move to the next parameter (year)
- Continue setting the year, month, day, time format (12 or 24 hours), local hour and minutes, using the same technique
- After programming is complete the display will return to the default hour and minutes with seconds display.

CLOCK ALARMS

There are two time alarms – Weekday alarm (**W**) and Single day alarm(**S**) - and one Ice Warning Alarm (**PRE-AL**).

- If **Weekday (W)** alarm is activated, it will sound at the set time and the alarm icon will flash Mondays through Fridays
- If **Single (S)** day alarm is activated, it will sound at the set time and the alarm icon will flash only for this specific day and will not activate on subsequent days
- If **Ice Warning Alarm (PRE-AL)** is activated, it will sound at the set time and alarm icon will flash once the remote temperature for Channel One (1) will reach 32°F(0°C) and below

NOTE: Ice Warning Alarm can be set only if one or both - Weekday or Single alarm - are programmed.

SETTING THE WEEKDAY (W) AND SINGLE DAY (S) ALARMS

- Press **ALARM** button once to enter into the alarms setting mode. The default alarm is a Weekday alarm (**W**). The abbreviation “**OFF**” with a letter “**W**” next to it will be displayed, if the alarm has not been set previously
- Press and hold **ALARM** button for two seconds. The hour digit will flash
- Adjust the hour using **UP** (?) or **DOWN** (?) buttons
- Press **ALARM** button again. The minute digits will flash
- Adjust the minutes using **UP** (?) or **DOWN** (?) buttons
- Press **ALARM** button again to confirm and the weekday alarm time will be set
- Set **Single (S)** day alarm if desired in the same manner

SETTING THE ICE WARNING ALARM (PRE-AL)

If Weekday (**W**) or Single day (**S**) alarm is set, the Ice Warning Alarm (**Pre-AL**) can be programmed.

- Press **ALARM** button once to enter into the Ice Warning Alarm setting mode. The abbreviation **OFF** with a **PRE-AL** next to it will be displayed.
- Press and hold **ALARM** button for two seconds. The number **30** will flash, meaning that if selected, the alarm will sound 30 minutes earlier than the Weekday or Single alarm.
- Select the desired Ice Warning Alarm interval in 15 minutes increments between 15 and 90 minutes, using **UP** (?) or **DOWN** (?) buttons
- Press **ALARM** button to confirm and exit from the alarm setting mode.

ACTIVATING/ DEACTIVATING ALARMS

- Press **ALARM** button to enter into the desired alarm mode.
- Press **UP** (?) to activate alarm and the corresponding icons **W**, **S** or **PRE-AL** will be displayed.
- Press **DOWN** (?) to deactivate alarm until “**OFF**” is displayed.

MAINTANANCE

CHANGING BATTERIES

- If the low battery indicator lights up, replace batteries in the corresponding unit.
- Do not mix old and batteries.

CLEANING

The main unit and remote sensors housings can be cleaned with a damp cloth. Small parts can be cleaned with a cotton tip or pipe-cleaner. Never use abrasive or corrosive cleaning agents or solvents. Do not immerse electronic components in water.

TROUBLESHOOTING

Check here before contacting customer service.

Issue	Symptom	Solution
Main unit	US Atomic Time signal is not received	Place unit by the window and keep it there overnight
Remote sensor	Cannot locate remote sensor	Check batteries
		Check location
		Press and hold DOWN (?) button on the main unit to search for the signal form the remote sensor
	Data does not match data on the main unit	Initiate manual sensor search (Press and hold DOWN (?) button on the main unit)

PRECAUTIONS

This product is engineered to give you years of satisfactory service if handled carefully. Here are a few precautions:

- Do not immerse the units in water.
- Do not clean the units with abrasive or corrosive materials. They may scratch the plastic parts and corrode the electronic circuits.
- Do not subject the product to excessive force, shock, dust, temperature, or humidity, which may result in malfunctions, shorter lifespan, damaged batteries, and damaged parts.
- Do not tamper with the units internal components. Doing so will invalidate the warranty and may cause damage. These units contain no user-serviceable parts.
- Use only fresh batteries. Do not mix new and old batteries.
- Read the user's manual thoroughly before operating the units.

SPECIFICATIONS

Main Unit

Indoor Temperature

Proposed operating range: 23.0°F to 122.0°F (-5°C to +50°C)

Temperature resolution: 0.2°F (0.1°C)

User-selectable (°F or °C) temperature display

Humidity (Indoor)

Operating Range: 30% to 80%

Resolution: 1%

Accuracy: 7%

Sampling Interval: 10 seconds

Clock

Precise atomic time

4 US Time Zones

12/24 hour time format

Crescendo 2 minutes alarm with 8 minutes snooze

Remote Sensor

Remote Temperature

Proposed operating range with alkaline batteries:

-40°C to + 50°C (-40°F to + 122°F)

Temperature resolution: 0.1°C/ 0.2°F

Humidity (Outdoor)

Operating Range: 30% to 80%

Resolution: 1%

Accuracy: 7%

Sampling Interval: 10 seconds

Transmitting Interval: around 47 seconds

RF Transmission Frequency: 433 MHz

RF range: Maximum 164 feet (50 meters)

Temperature transmission cycle: approximately 45 seconds

Low battery indicator (shown on the main unit's display)

Wall-mount or table stand

Power

Main unit: 2 CR2032 size 1.5V batteries (included)

Remote Sensor: 2 AAA size 1.5V batteries (not included)

Dimensions

Main unit: 7.01(L) x 4.72(H) x 0.37(D) inches/ 178(L) x 120(H) x 9.5(D) mm

Remote sensor: 1.48(L) x 4.33(H) x 0.91(D) inches / 37.5(L) x 110(H) x 23(D) mm

Battery Safety Instructions

- Always purchase the correct size (2 x 1.5V AAA, 15A/15AC ANSI, LR6 IEC), (2 x ANSI/NEDA-5004LC, IEC-CR2032) and grade of battery most suitable for the intended use.
- Replace all batteries of a set at the same time.
- Clean the battery contacts and also those of the device prior to battery installation.
- Ensure the batteries are installed correctly with regard to polarity (+ and -).
- Remove the batteries from any weather station which is not to be used for an extended period of time.
- Remove used batteries promptly.
- Do not mix old batteries with new batteries.
- Do not mix alkaline, lithium, standard (Carbon Zinc), or rechargeable (Nickel Cadmium) batteries.

Caution:

- If batteries or parts are swallowed, see a doctor immediately.

STANDARD WARRANTY INFORMATION

This product is warranted by Meade Instruments Corp. (MIC) to be free of defects in materials and workmanship for a period of ONE YEAR from date of original retail purchase in the U.S.A. MIC will repair or replace the product, or part thereof, found upon inspection by MIC to be defective, provided the defective part or product is returned to MIC, freight prepaid, with proof of purchase. This warranty applies to the original purchaser only and is non-transferable. Meade products purchased outside North America are not included in this warranty.

RGA Number Required: Prior to the return of any product or part, a Return Goods Authorization (RGA) number must be obtained by writing to Meade's Customer Service Department or by calling **800-626-3233**. Each returned part or product must include a written statement detailing the nature of the claimed defect, as well as the owner's name, address, phone number, and a copy of the original sales invoice.

This warranty is not valid in cases where the product has been abused or mishandled, where unauthorized repairs have been attempted or performed, or where depreciation of the product is due to normal wear-and-tear. MIC specifically disclaims special, indirect, or consequential damages or lost profits, which may result from a breach of this warranty. Any implied warranties which cannot be disclaimed are hereby limited to a term of one year from the date of purchase by the original retail purchaser.

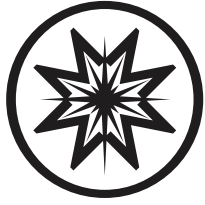
This warranty gives you specific rights. You may have other rights which vary from state to state.

MIC reserves the right to change product specifications or to discontinue products without prior notice.

This warranty supersedes all previous Meade product warranties.

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All user manual contents and information are subject to change.



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